Introduction to Building Trades

Course Number: 17002

Rational Statement:
Students will gain insight into the career of building trades by experiencing the practical skills needed to succeed in the construction industry.

Suggested Grade Level: 10-12

Topics Covered:

- Industry safety procedures
- Math Skills
- Hand, power, and pneumatic tools
- Blueprint reading and survey techniques
- Construction project
- Plumbing applications
- Electrical wiring applications
- Concrete construction applications
- Drafting design concepts
- Career Exploration

Indicator # 1: Understand and Apply Industry Safety Procedures	
Bloom's Taxonomy Level	**Standard and Examples**
Application	**IBT1.1 Identify and demonstrate the proper industry safety standards.** Examples: • Examine basic construction safety using OSHA (Occupational Safety Health Administration) standards i.e. • Demonstrate the use of protective clothing & safety equipment • Inspect and care for various types of personal protective equipment • Demonstrate basic first aid • Explain the function of Material Safety Data Sheets (MSDS) • Practice safe work procedures around electrical hazards • Explain and practice safe lockout/tag out procedures • Maintain a written portfolio record of written safety examinations and equipment examinations for which the student has passed

Indicator #2: Utilize appropriate industry math skills and formulas	
Bloom's Taxonomy Level	**Standard and Examples**
Application	**IBT2.1 Understand and demonstrate basic math skills.** Examples: • Add, subtract, multiply, and divide whole numbers with and without a calculator • Add, subtract, multiply, and divide fractions • Add, subtract, multiply, and divide decimals, with and without a calculator • Convert decimals to percents and percents to decimals • Convert fractions to decimals and decimals to fractions • Calculate the necessary unit of measure for a project

Indicator # 3: Identify and correctly use appropriate hand, power, and pneumatic tools	
Bloom's Taxonomy Level	**Standard and Examples**
Application	**IBT3.1 Demonstrate safe and proper use of hand tools.** Examples: • Identify and report on the hand tools used in the construction trades • Demonstrate safe use of basic hand tools • Demonstrate basic maintenance procedures for hand tools
Application	**IBT3.2 Demonstrate safe and proper use of power tools.** Examples: • Identify and report on the power tools used in the construction trades • Demonstrate safe use of power tools • Explain the procedures to properly maintain these power tools
Application	**IBT3.3 Demonstrate safe and proper use of pneumatic tools.** Examples: • Identify and report on the pneumatic tools used in the construction trades • Demonstrate safe use of pneumatic tools • Explain the procedures to properly maintain these pneumatic tools

Indicator #4: Understand blueprint reading and perform basic survey techniques	
Bloom's Taxonomy Level	**Standard and Examples**
Application	**IBT4.1 Demonstrate how to read blue prints.** Examples: • Identify and recognize basic blueprint terms and symbols • Relate information on prints to real parts and locations
Application	**IBT4.2 Demonstrate basic survey techniques.** Examples: • Define plot plan, building lines, care of instruments, layout and running lines • Demonstrate surveying a project

Indicator #5: Apply basic organizational, spatial, structural and construction principles of carpentry	
Bloom's Taxonomy Level	**Standard and Examples**
Creating	**IBT 5.1 Illustrate constructing a structural project.** Examples: • Complete construction of a utility shed • Build a small scale model home • Construct a community service project (wheel chair ramp)

Indicator #6: Study principles, standards and applications of plumbing	
Bloom's Taxonomy Level	**Standard and Examples**
Comprehension	**IBT6.1 Define safety procedures for plumbing** Examples: • Explain the classes of fires, and the type(s) of extinguishers used for each • Show proper procedures for soldering
Analysis	**IBT6.2 Distinguish pipe sizes, fittings, adapters, and coupling.** Examples: • Explain uses of different plumbing materials • Interpret code for different plumbing situations
Application	**IBT6.3 Demonstrate the use of plumbing materials.** Examples: • Select methods to properly thread pipe • Make use of plumbing materials to build a bathroom mock-up • Illustrate procedures of proper soldering and pipe fitting

Indicator #7: Employ basic knowledge and methods of electrical wiring	
Bloom's Taxonomy Level	**Standard and Examples**
Comprehension	**IBT7.1 Select safety uses of electrical materials.** Examples: • Identify basic codes of electrical wiring • Interpret proper and improper electrical connections
Comprehension	**IBT7.2 Identify electrical materials.** Examples: • Distinguish wire size, capacities, and characteristics • Classify conductors and other electrical materials
Application	**IBT7.3 Illustrate uses of electrical materials.** Examples: • Manipulate switches, outlets and light fixtures • Complete construction of electrical project(s)

Indicator #8 Integrate concrete technology to achieve thorough construction background	
Bloom's Taxonomy Level	**Standard and Examples**
Comprehension	**IBT8.1 Identify safe use of concrete materials** Examples: • Name basic codes and techniques of concrete construction applications • Describe safe use of concrete tools • List concrete terminology and uses of concrete
Application	**IBT8.2 Calculate the component parts of concrete and cement.** Examples: • Convert formula for making concrete • Interpret procedure for making cement mortar
Application	**IBT8.3 Employ application of concrete in different situations.** Examples: • Operate tools for placing concrete foundations and floors in different situations • Solve finishing procedures for floors, sidewalks, and driveways • Maintain proper maintenance of equipment when project is finished
Indicator #9: Understand drafting design and concepts	
Bloom's Taxonomy Level	**Standard and Examples**
Comprehension	**IBT9.1 Choose computer programs to acquire skills in drafting.** Examples: • Describe drafting terminology and techniques • Explore different programs available to draw on computer
Application	**IBT9.2 Create a floor plan design.** • Formulate the symbols of a given program and apply to project • Plan a construction project using different scales
Application	**IBT9.3 Complete a floor plan design using accepted symbols and techniques.** Examples: • Demonstrate and use the alphabet of lines • Classify information required on a typical floor plan

Indicator #10: Student will participate in career exploration activities	
Bloom's Taxonomy Level	**Standard and Examples**
Application	**IBT10.1 Research career opportunities in the architecture and construction fields.** Examples: • Utilizing the career exploration software research and write a report on career opportunities in the Architecture and Construction fields • Utilize the career exploration software to research educational requirements for chosen career path • Utilizing career exploration software, update students portfolio